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ABSTRACT

Computer-mediated communication (CMC) is a pervasive means of communicating in work place, education, and home settings. Males currently occupy approximately 69% of all jobs in the computer industry and only 10% of upper-level positions are occupied by females. Stereotypical perceptions and gendered occupations contribute to the lack of females in computer-related fields. Because CMC is a faceless medium, many hoped that it would neutralize impressions of gender identity and provide women with an equal playing field. On-line discussion groups offer participants the opportunity to disguise their gender by using pseudonyms; however, because of gendered language and non-verbal styles, an individual's gender is often challenged if the language used contradicts the assumed norm. "Flaming" and adversarial language often discourage female participation as well. Gender differences do exist in CMC, and males tend to assume the same roles they do when communicating face-to-face. Researchers believe male monopolization of CMC has, indeed, limited female involvement. (Contains 19 references.) (Author/CR)

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Running Head: GENDER AND TECHNOLOGY

Gender Differences: An Examination of Computer-Mediated Communication

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"Debut" Paper

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Abstract

Computer-mediated communication is a pervasive means of communicating in work place, education, and home settings. Males currently occupy approximately 69 percent of all jobs in the computer industry and only ten percent of upper-level positions are occupied by females. Stereotypical perceptions and gendered occupations attribute to the lack of females in computer-related fields. Because computer-mediated communication is a faceless medium, many hoped that it would neutralize impressions of gender identity and provide women an equal playing field. On-line discussion groups offer participants the opportunity to disguise their gender by using pseudonyms, however, because of gendered language and non-verbal styles one's gender is often challenged if the language used contradicts the assumed norm. Flaming and adversarial language often discourage female participation as well.

Gender Differences:
An Examination of Computer-Mediated Communication

From the moment the doctor says, "It's a girl!" or "It's a boy!" we begin a life that in some ways is a result of the doctor's expression. Spender (1995) discussed an experiment she undertook in the 1970s on modifying our treatment of babies on the basis of gender. Women were given a baby dressed in "purple" and told the baby was a girl. The group was then informed that there was a mistake and the baby was, indeed, a boy. The results documented that if the women thought the baby was a girl, the baby was held closely, "with their heads bent down, while they spoke, in quiet, soothing, affectionate tones" (Spender, 1995, p. 242). Comments such as, "Look how beautiful she is" were the usual responses for newborn females. Males, on the other hand, were treated differently. Women in this study moved the males "further away, to jog him up and down, to speak more loudly and more robustly" (Spender 1995, p. 242). Typically, stereotypical comments were used as well when speaking to boys such as, "Doesn't he look strong and healthy," or "Isn't he a big boy." Similar to our beginnings as a baby, women and men continue to be treated and treat one another differently using different communication styles.

Beginning in the 1960's and 1970's, the very nature of human communication changed. With new technology growing and changing on a daily basis, communication researchers are finding a new field of study to investigate--the area of computer-mediated communication (CMC). Simmons (1994) defines CMC as follows:

> refers to the participatory or interactive communication that takes place between two or more people using different computers and a telephone link that allows them to write each other with electronic equipment (a cable link or phone modem) that places the written words on a distant computer screen (monitor). (p. 11)

Jaffe, Lee, Huang, and Oshagan (1995) define CMC as a process of talking either "one-to-one, one-to-many, and many-to-many" using a centrally text-based medium and a computer-based channel (p. 2). CMC includes electronic mail (e-mail), computer conferencing, computer bulletin boards, group decision support systems, electronic blackboards, intelligent information retrieval

systems, and groupware systems (Rice & Danowski, 1993). The introduction of CMC has changed many facets of today's communication. CMC often replaces traditional face-to-face and telephone communication. It is literally changing the way in which businesses communicate both internally and externally. It provides companies a new means in which to advertise, and a new market to explore. It is changing the way researchers research, families talk to family members and has, indeed, connected communities across the world. Biagi (1996) found (as noted in Advertising Age) that 40 million U.S. households have personal computers, 22 million of which have modems. An amazing nine million U.S. households have on-line services and the numbers are growing everyday. As gender differences have been established and confirmed by many researchers and with the tremendous impact CMC is having on our society, one wonders then how CMC is effecting our gendered culture. Indeed, when communicating via electronic means, do we cognitively declare "It's a girl or boy" accordingly. This review of literature examines CMC and gender research. Specifically, it examines women and their presence in computer-related fields, and seeks to determine if, indeed, CMC offsets distinctions of gender

Women: Jobs in Technological Fields

Only 12 percent of married women with children worked in 1950, and by 1987, 57 percent worked outside of the home (Meyrowitz, 1990). Women are continuing to become more and more pervasive in the workforce. The computer industry is one of the fastest growing industries in America. According to the U.S. Bureau of Labor and Statistics (1995), computer engineers and systems analysts are projected to be the third and fourth fastest-growing occupations in America (behind personal care aides and home health aides). However, as the percentage of women graduating from law school is increasing, the percentage of women computer science Ph.d.'s has never gone beyond 17 percent (DeBare, 1996). Currently, women make up about 31 percent of the computer scientists and only hold approximately ten percent of top executive positions (U.S. Bureau of Labor and Statistics, 1995). The question then is why are lower percentages of women working in the computer industry when women occupy approximately 50 percent of the U.S. workforce? DeBare (1996), relates a story that one female revealed about her

experiences with math teachers. Questions such as, "Are you sure you want to major in math? What are you going to do with it when you get married"? were asked of a young female student (DeBare, 1996). The mode of thinking (or that girls have grown up thinking) involves gender stereotypes indicating that computer programming, computer engineering and systems analysis are computer-related and, therefore, primarily for men (Jaffe et al., 1995). Pearson, West, and Turner (1995) cite studies by Bridges, 1987; Jackson, 1983; and Palmer & Lee, 1990, in which "most occupations are perceived as appropriate for either men or women, but not for both," (p. 210) and in this case men and women are seemingly agreeing on the wildly held view that the "computer world" is male-dominated (Jaffe et al., 1995).

Despite the fact that women occupy few jobs within the computer industry itself, computer literacy is necessary in order to be considered in almost any field, and for women this primarily includes secretarial positions. Today, e-mail, voice mail, databases, and laser printers are part of a typical secretary's vocabulary. Currently, women make up 98.9 percent of all secretarial positions (U.S. Bureau of Labor Statistics, 1995).

Gender Differences in CMC

CMC appears to be the perfect conclusion to years of gender bias. Without face-to-face interaction which accounts for appearance and nonverbal interaction it seems logical that "sex object," "mother," "child," and "iron maiden" stereotypes would become less prevalent (Wood, 1994, pp. 262-266). Herring (1994) claims that CMC and in particular on-line discussions do not provide an equal playing field for males and females. As men have dominated the technological genre, men have also "comprised the majority of users of computer networks" (Herring, 1994, p. 1).

On-line discussion support systems

In 1991, Herring began examining and analyzing communication discussion lists. Discussion lists or chat rooms are interactive on-line groups that share similar interests. Herring (1994) found that men and women find "different kinds of on-line interactions as appropriate and desirable" (p. 1). The first discussion list LINGUIST-L was to used by Herring to observe

responses by both men and women. A survey was used to understand the different perceptions men and women have about their participation in the interactive process. Herring (1992) found that men and women who were not actually participating (typing) in the group discussion gave the answer of "intimidation" as the reason for their lack of participation. A significant discovery is that men and women react differently to intimidation. The following conclusion can be made based on the information from her study: (1) Men accept intimidating behavior and language as a normal, exciting part of the process. (2) Women, however, simply are "dismayed" and avoid this kind of communication on-line. (3) Men do most of the typing dominating the conversations.

Jaffe et al. (1995) similarly conducted an experiment whereby students were connected using electronic conferencing. A topic of interest was assigned and observations were made comparing an experimental group in which pseudonyms were used and a control group that used their own names. The results show that women are more likely to use cross-gender pseudonyms than are men, and men and women both use more dialogue when pseudonyms are used. Jaffe et al. (1995) concludes that, indeed, as CMC affords the opportunity to "mask aspects of his or her identity," stereotypical expectations or both race and gender are compensated (p. 14).

Classroom Discussion Groups

In G. Craven's (personal communication, April 25, 1996) (Professor of English at West Texas A&M University), literature classes computerized discussions are used to supplement the traditional lecture environment approximately six to nine times a semester. Craven provides the question for each of the conferences, and students then begin responding to the questions. The students create pseudonyms and as previously noted respond more openly using pseudonyms. The observations made from these discussion sessions further validate previous findings. Craven notes that males often feel threatened by female criticism "even if it's a literature figure". In one example, the conference question stated, "To what degree do you like or dislike the speaker in Tennyson's poem *Ulysses*"? One female (Terry) responded that she disliked the speaker because of "the way women were treated in relationships." A male respondent replied, "Are you a feminazi?"

Craven also noted from observation that males generally choose male pseudonyms and females generally choose female pseudonyms rather than non-gendered identities. In the session observed, however, approximately 36 students were females and six were males and in this case females were more likely to choose non-gender specific names and males used male pseudonyms. Also notable is the fact that males were equally involved in the discussion process despite the fact that they were out-numbered 36 to six.

First-year students are frequently disruptive when introduced to this new process of participation. Craven found that disrupters are males while females will not only note the unacceptable behavior, but will also intervene and suggest a task-oriented solution.

Different Styles Observed

Wood (1995) notes that women are often defined by "appearance and/or relationships" and communication is the foundation for sustaining the relationships as women "foster connections, support, closeness, and understanding" (pp. 127, 141). In a computerized discussion of the movie *The Joy Luck Club* by author and screen play writer Amy Tan, (introduced in Craven's literature class) females seemed to like, relate to, or disapprove of characters relative to their success at sustaining relationships.

Snoopy (female)

I would least like to have Lindo as my mother because she thinks that her opinions are the only ones that are valid. She doesn't take other peoples into consideration.

Batwomen (female)

An-Mei Hsu would have to be the mother that I would like to have the most because she is the most considerate to her daughters feelings...

Males, however, responded in a direct, dominating manner, not acknowledging feelings associated with the situation.

Jake (male)

Ying-ying St. Clair would be the mother I would least like to have because she didn't have a very good connection with reality....An-Mei Hsu seems like the most likeable mom. She wasn't pushy or over opinionated.

Flaming

Craven also noted that in all the sessions he has moderated since the programs inception, only males have used flaming. Flaming is adversarial language used via the computer and often includes profanity. Similarly, Herring (1992), Simmons (1994), and Jaffe et al. (1995) simply state that women do not flame and avoid adversarial exchanges altogether. In one example, Craven had a female student from the University of Costa Rica visiting and participating in a discussion session. The student knew very little English and used Spanish to communicate on the network. Immediately, harsh racist language began to appear on the screen (by males) and the session was promptly interrupted by Craven. Spender (1995) similarly found in a computer-writing classroom she observed in the United States that sexually-oriented content often appears on the screens creating a hostile environment for women.

Flaming is much more prevalent among participants using CMC compared to oral communication, especially when no prior face-to-face communication has been established (Simmons, 1994). Men not only flame, but accept flaming as a norm. In Coates study (as cited in Herring, 1992), women consider flaming as a "disruption of conversation" while men consider flaming as "part of the conventional structure of conversation"(p. 153). Spender (1995) believes that sexual harassment in CMC is also flaming and that women are forming their own forums because of the amount of flaming and "because they feel as though they do not have free speech in the presence of men" (p. 225).

Language

In considering "masked" identities and the actual ramifications, one could argue that despite the name or label given to the person, language or word choice along with gender-related names plays a part in identifying the opposite sex. Lakoff's study (as cited in Jaffe et al., 1995) found that females use "emotionally intensive adverbs" more often than do males. Eakins and

Eakins' study (as cited in Jaffe et al., 1995) detected that men and women use different vocabularies. When considering language styles it is not surprising that participants in CMC will actually imply or accuse the other participant of being the opposite sex (Herring, 1992). Herring (1992) reported a "male respondent" on an on-line service using language that expressed "appreciation and consideration," language typical of a female. The female respondent became suspicious that the "male respondent" was, indeed, a female pretending to be a male. This type of gendered language supports established stereotypes such as findings by Tannen (1994) in which females often communicate using "interdependent" and "cooperative" language and males demonstrate "independence" and authority in their communication patterns.

Language is also a clear reflection of the climate or environment in which the communication transpires relating not only to face-to-face communication, but to CMC as well. Suchan (1995) found that factors such as culture, discourse norms, communication climate and roles influence the writing, content, and style of documents. Important to this finding is that as Suchan (1995) related, a very powerful influence on writer' interpretation is the micro-level language system that exists in the social context. Therefore, as Tannen (1990) related just a males and females interpret language and non-verbal cues differently in normal communication contexts, they also interpret language and non-verbal cues through CMC differently.

Non-verbal

According to James, Wotring, and Forrest (1995) computer-mediated channels are accessed to obtain general and/or specific information rather than for social reasons. However, about 30 percent of the content used through CMC relates social and emotional messages (Rice, 1987). Through the arrival of the interactive nature of CMC or on-line capabilities, some have suggested that participants have discovered non-verbal ways of demonstrating affection (Pollack, 1982; Rice, 1987). Important to the non-verbal aspects of CMC is the prior relationship or if prior face-to-face communication has been established giving participants a point of reference (Beswick & Reinsch, 1987). Gender does indeed contribute to language and cues given to the receiver dependent on prior contact. For example, women are more likely to use polite language.

Politeness according to Simmons (1994) is "acting so as to take account of the feelings of others, is achieved through verbal strategies" (p. 3).

Non-verbal cues include typographic means to relate paralingistic messages (Kiesler, Siegel, & McGuire, 1994; Simmons, 1994). The arrangement of the document, sentence structure, spelling and punctuation all contribute to understanding the message (Suchan, 1995). Other non-verbal expressions include "grammatical markers, strategic capitalization and visual arrangements of text characters" or "emoticons" (Jaffe et al, 1995, p. 4). For example one might say, "You're the BEST or I miss you soooooo much." Indeed, the way in which paralingistic cues are expressed is often related to one's gender (Jaffe et al., 1995).

Emoticons offer visual cues formed by the keyboard that represent emotions or feelings when read sideways (Rezabek & Cochenour, 1994), and replace facial expressions. Examples include a smiling icon :-) which could follow a humorous comment or simply a pleasant statement or ;-) a "winking smiler." A sad icon :-(could be used when expressing disappointment, anger, sadness, or any number of emotions. The extent to which the use of emotions is related to gender as noted by Rezabek and Cochenour (1994) is not known and deserves further research.

Summary

There have been references suggesting that CMC is the ideal means for gender neutrality and equality. The literature demonstrates that gender differences do exist in CMC and that males tend to assume the same roles as when communicating face-to-face. Just as the print media was dominated by men at its inception, so is computer-related technology including jobs and opportunities in using CMC. Researches believe that male monopolization of CMC has, indeed, limited female involvement. By nature CMC involves flaming, sexual remarks, male dominance, and "male language;" and women often find themselves either accepting this undesirable behavior or not participating.

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Author Note

G. Craven uses interactive computer groups in his classroom to discuss literature. In my interview with him we examined copies of comments made by students involved in the interactive discussions closely examining their responses in relation to their gender. He shared stories involving pseudonyms, flaming, and gender. G. Craven uses computer interaction as a learning tool and not for the purpose of studying gender communication, however, this setting provided interesting research in this area.

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